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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/607,801

06/27/2003

Qinghua Li

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8791

7590

02/21/2006

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EXAMINER

CAO, HUEDUNG X

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,801

Applicant(s)

LI ET AL.

Examiner

Huedung X. Cao

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2821

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 8-10, and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by LINDENMEIER (US 6,768,457 B2).

As per claim 1, Lindenmeier teaches the claimed method, comprising: receiving a framed digital signal having preamble symbols in a mobile device (Lindenmeier, abstract, column 10, lines 38-45); "sequentially evaluating in one frame a first antenna to receive a first preamble symbol and a second antenna to receive a second preamble symbol where the first and second antennas are switched to an input of a receiver in the mobile device to ascertain a signal quality (Lindenmeier, column 9, lines 32-37, column 12, lines 1-21); and selecting one antenna from the first and second antennas that provides a higher signal quality to be a receiving antenna of the mobile device" (Lindenmeier, column 9, lines 28-44, column 13, lines 15-64).

Claim 2 adds into claim 1 "partitioning the multiple antennas by placing the receiving antenna in a first group and the non-selected antenna in a second group; in subsequent frames, sequentially switching each antenna to process portions of the

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preamble symbols in the receiver to evaluate the signal quality of the signals received by the multiple antennas; and replacing the receiving antenna in the first group with a non-selected antenna in the second group that has a higher signal quality" (Lindenmier, column 15, lines 12-33)

Claim 3 adds into claim 2 "demodulating the signals in a single receiver chain to generate quadrature signals; and comparing the quadrature signals to determine which of the multiple antennas provides the higher signal quality" (Lindenmeier, abstract, column 13, lines 15-36, column 15, line 51-column 16, line 11).

Claim 4 adds into claim 2 "receiving a preamble by multiple antennas further includes receiving the preamble by at least three antenna" which Lindenmier teaches in column 15, line 41-column 16, line 11.

Claim 5 adds into claim 1 "comparing the receiving antenna having the higher signal quality with the other antennas, one by one, to dynamically determine the antenna having the higher signal quality" (Lindenmeier, column 9, lines 15-44).

Claim 6 adds into claim 2 "incorporating the multiple antennas with a single receive chain on a Network Interface Card (NIC)" which Lindenmeier does not explicitly teach. However, it would have been obvious to implement Lindenmeier's receiving circuit on a "Network Interface Card (NIC)" because it will reduce the space occupied by the circuit and simplify the manufacture of the receiving circuit.

As per claim 8, Lindenmeier teaches the claimed "method, comprising: controlling a switch in a transceiver of a mobile device to sequentially provide signals received by at least three antennas to an input a single receiver where preamble are

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symbols used to evaluate signal quality for at least three antennas in a single frame” receiver (Lindenmeier, abstract, column 9, lines 32-37, \ column 12, lines 1-21).

Claim 9 adds into claim 8 “evaluating the signals received by the at least three antennas to compare the signals received by the at least three antennas as to the signal quality” (Lindenmeier, column 11, lines 2-34).

Claim 10 adds into claim 9 “partitioning the at least three antennas by placing the antenna having the highest signal quality in a first group and the remaining antenna in a second group; in subsequence frames, sequentially switching the at least three antennas to provide the preamble symbols to the single receiver to evaluate the signal quality of the signals received by the at least three antennas; comparing the signal quality of the signals received by the at least three antennas to select the antenna that provides the higher signal quality; and replacing the antenna in the first group with an antenna in the second group based on the comparison of signal quality (Lindenmeier, column 15, line 41-column 16, line 11).

Claims 15-18 claim a system based on a method of claims 8-10; therefore, they are rejected for the same reason.

Response to Arguments

3. Applicant's arguments filed 12/02/2005 have been fully considered but they are not persuasive.

Applicant argues that Lindenmeier does not rely on using first and second preamble symbols in a frame to evaluate the multiple antennas which and Lindenmeier concludes that the preamble signal is a drawback which is not correct. Lindenmeier does disclose using the preamble signal to evaluate the signal of the antennas in column 1, line 39-column 2, line 17 and column 9, lines 28-44

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Inquiries

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao
Patent Examiner


Don Wong
Supervisory Patent Examiner
Technology Center 2800